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of Chrysotile by TEM in Commercial Talcs

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JM Johns-Manville

Internal Correspondence

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Date: August 28, 1973

From: V. E. Wolkodoff - R&D Ctr

Copies:

Subject: DETERMINATION OF CHRYSOTILE BY TEM IN COMMERCIAL TALCS

1. Fourteen commercial talcs were examined by TEM for the presence of chrysotile. The samples are identified in Table No. 1, which also lists individual TEM plate numbers.
2. The presence or absence of chrysotile is based on scanning from 20 to 25 fields for each sample. Three electron micrographs were taken of typical fields in each sample. These electron micrographs, a total of 42 prints, are attached.
3. The results are listed in Table No. 2. If chrysotile was detected in a sample, a percentage is listed and, at best, is qualitative. However, these percentages are relative to each other. Data on tremolite or tremolite-like amphibole are also listed but are based mainly on qualitative petrographic work as a frame of reference for future optical work by recent FDA proposal.
4. Results:

A. Chrysotile was not detected in:

Mistron Vapor
Mistron Monomix
Pfizer
Emtal 599
Cyclo-Fil

- B. If the chrysotile content was determined to be 1000 ppm or less, the chrysotile at this stage of the study has to be considered a contaminant. These include:

Yellowstone
Mistron Super Frost
Johnson and Johnson, Vermont
Cyclo-Sorb
Johnson and Johnson Baby Powder

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- C. The only samples which contain chrysotile believe to be part of the mineralogical system at this stage of the study are:

Fibrene C-400
Asbestine 5X
Nytal 700
Italian Cosmetic Talc

5. In many of the electron micrographs, distinctly fibrous material appears, even though chrysotile and tremolite are not reported. These "fibers" are talc verified, either during process of scanning or by reviewing TEM plates under a binocular microscope.

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Attachment

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Notebook No. 4393, p. 4,5

Table No. 1

IDENTIFICATION AND TEM DATA ON COMMERCIAL TALCS

Sample No.	Product	Reference No.	TEM
			Plate Numbers
1	Yellowstone, United Sierra, Montana	D.M. Inc. No. C-38	2144 A, B, and C
2	Mistron Vapor, United Sierra, Montana	D.M. Inc. No. C-104	2145 A, B, and C
3	Mistron Monomix, United Sierra, Montana	D.M. Inc. No. C-25	2146 A, B, and C
4	Mistron Super Frost, United Sierra, Montana	D.M. Inc. No. C-124	2147 A, B, and C
5	Fibrene C-400, United Sierra, Death Valley	D.M. Inc. No. C-108	2148 A, B, and C
6	Charles Pfizer Talc for paper industry	D.M. Inc. No. C-68	2149 A, B, and C
7	Asbestine 5X, International Talc	D.M. Inc. No. C-95	2150 A, B, and C
8	Nytal 300, R. T. Vanderbuilt	D.M. Inc. No. C-109A	2151 A, B, and C
9	Emtal 599, Englehard	D.M. Inc. No. C-13	2152 A, B, and C
10	Johnson & Johnson, Green Mt., Vermont	D.M. Inc. No. C-14	2153 A, B, and C
11	Italian Talc e Grafite Val Chisone	J-M No. RE-73166-18	2154 A, B, and C
12	Cyclo-Fil, J-M for paper	D.M. Inc. No. Std. 70-34	2155 A, B, and C
13	Cyclo-Sorb, J-M for paper	D.M. Inc. No. Std. 70-33	2156 A, B, and C
14	Johnson & Johnson Baby Powder	J-M No. RC-73219-1	2157 A, B, and C

NOTE: All TEM prints are at magnification of 20,000 X (2 cm equals 1 micron).

Table 2
Detection of Chrysotile by TEM
in Commercial Talcs

Sample No.	Product	% Chrysotile, by Volume, ppm	Remarks on Chrysotile	Tremolite % by Volume ¹
1	Yellowstone	500	Contamination	0
2	Mistron Vapor	0	---	0
3	Mistron Monomix	0	---	0
4	Mistron Super Frost	<100	Contamination	trace?
5	Fibrene C-4-0	1500	---	5-10%
6	Pfizer	0	---	0
7	Asbestine 5X	>3000	---	30%
8	Nytal 300	>5000	---	present
9	Emtal 599	0	---	0
10	J and J, Vermont	<1000	May be Contamination	0
11	Italian Cosmetic	3000	---	trace?
12	Cyclo-Fil	0	---	20-30%
13	Cyclo-Sorb	approx. 1000	May be Contamination	5-10%
14	J and J Baby Powder	approx. 1000	May be Contamination	0

¹ Although tremolite determination is not intent of this report, crude percentages (based mostly on petrographic examination) are presented to account for log-like fibers in some of the electron micrographs. Unlike chrysotile, tremolite has no particular distinguishing feature other than morphological in some cases when examined by TEM.